

## ABSTRACT

A radio system having an improved phase noise characteristic and a thereby improved communication quality, a radio transmitter, and a radio receiver. In the radio system, a radio transmitter (101) transmits a multiplexed signal so multiplexed that a pilot signal transmitted at the center frequency. A radio receiver (151) comprises an antenna (152) for receiving a radio signal from the radio transmitter (101), a distributor (159) for distributing the received signal received by the antenna (152) to two directions, a bandpass filter (160) for extracting a signal component corresponding to the pilot signal having the same center frequency as one of the distributed signals distributed by the distributor (159), a delay corrector (162) for delaying the other of the distributed signals, and a quadrature demodulator (163) for multiplying the frequency of the signal component corresponding to the pilot signal extracted by the bandpass filter (160) by the frequency of the other signal delayed by the delay corrector (162) and performing quadrature demodulation.